

**Installation
Instructions**

hp StorageWorks M-series Rack Mount Kit

Fifth Edition (July 2004)

Part Number: AA-RQZPE-TE/958-000292-002

These installation instructions provide the procedures used for installing an HP StorageWorks Director 2/64 in an M-Series Rack, using the M-Series Rack Mount Kit.



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About This Guide

These installation instructions provide information to help you:

- Install the HP StorageWorks Director 2/64 in an m-series rack.
- Perform the power-on self test.
- Contact technical support for additional assistance.

“About this Guide” topics include:

- [Overview](#), page 6
- [Conventions](#), page 7
- [Rack Stability](#), page 10
- [Getting Help](#), page 11

Overview

This section covers the following topics:

- [Intended Audience](#)
- [Related Documentation](#)

Intended Audience

- This book is intended for use by owners of the StorageWorks Director 2/64.

Related Documentation

For a list of corresponding documentation included with this product, see the Related Documents section of the *HP StorageWorks Director Release Notes*.

For the latest information, documentation, and firmware releases, please visit the HP StorageWorks web site:

<http://h18006.www1.hp.com/storage/saninfrastructure.html>

- For information about Fibre Channel standards, visit the Fibre Channel Industry Association web site, located at <http://www.fibrechannel.com>.

Conventions

Conventions consist of the following:

- [Document Conventions](#)
- [Text Symbols](#)
- [Equipment Symbols](#)

Document Conventions

This document follows the conventions in [Table 1](#).

Table 1: Document conventions

Convention	Element
Blue text: Figure 1	Cross-reference links
Bold	Menu items, buttons, and key, tab, and box names
<i>Italics</i>	Text emphasis and document titles in body text
Monospace font	User input, commands, code, file and directory names, and system responses (output and messages)
<i>Monospace, italic font</i>	Command-line and code variables
Blue underlined sans serif font text (http://www.hp.com)	Web site addresses

Text Symbols

The following symbols may be found in the text of this guide. They have the following meanings:



WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or death.



Caution: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or data.

Tip: Text in a tip provides additional help to readers by providing nonessential or optional techniques, procedures, or shortcuts.

Note: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Equipment Symbols

The following equipment symbols may be found on hardware for which this guide pertains. They have the following meanings:



Any enclosed surface or area of the equipment marked with these symbols indicates the presence of electrical shock hazards. Enclosed area contains no operator serviceable parts.

WARNING: To reduce the risk of personal injury from electrical shock hazards, do not open this enclosure.



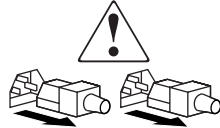
Any RJ-45 receptacle marked with these symbols indicates a network interface connection.

WARNING: To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.



Any surface or area of the equipment marked with these symbols indicates the presence of a hot surface or hot component. Contact with this surface could result in injury.

WARNING: To reduce the risk of personal injury from a hot component, allow the surface to cool before touching.



Power supplies or systems marked with these symbols indicate the presence of multiple sources of power.

WARNING: To reduce the risk of personal injury from electrical shock, remove all power cords to completely disconnect power from the power supplies and systems.



Any product or assembly marked with these symbols indicates that the component exceeds the recommended weight for one individual to handle safely.

WARNING: To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manually handling material.

Rack Stability

Rack stability protects personnel and equipment.



WARNING: To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling jacks are extended to the floor.
 - The full weight of the rack rests on the leveling jacks.
 - In single rack installations, the stabilizing feet are attached to the rack.
 - In multiple rack installations, the racks are coupled.
 - Only one rack component is extended at any time. A rack may become unstable if more than one rack component is extended for any reason.
-

Getting Help

If you still have a question after reading this guide, contact an HP authorized service provider or access our web site: <http://www.hp.com>.

HP Technical Support

Telephone numbers for worldwide technical support are listed on the following HP web site: <http://www.hp.com/support/>. From this web site, select the country of origin.

Note: For continuous quality improvement, calls may be recorded or monitored.

Be sure to have the following information available before calling:

- Technical support registration number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Operating system type and revision level
- Detailed, specific questions

HP Storage Web Site

The HP web site has the latest information on this product, as well as the latest drivers. Access storage at: <http://www.hp.com/country/us/eng/prodserv/storage.html>. From this web site, select the appropriate product or solution.

HP Authorized Reseller

For the name of your nearest HP authorized reseller:

- In the United States, call 1-800-345-1518
- In Canada, call 1-800-263-5868
- Elsewhere, see the HP web site for locations and telephone numbers: <http://www.hp.com>.

Installation Instructions

1

This section describes the procedures used for installing a StorageWorks Director 2/64 in an m-series rack, using the m-series rack mount kit (DS-DMGGD-AF). This chapter contains the following information:

- [Preparing for Installation](#)
- [Installing the Shelf Brackets in the M-Series Rack](#)
- [Attaching the Mounting Hardware to the Director 2/64](#)
- [Inserting Cage Nuts](#)
- [Finalizing the Rack Mounting Procedure](#)
- [Power-On Self Test](#)
- [Further Setup](#)

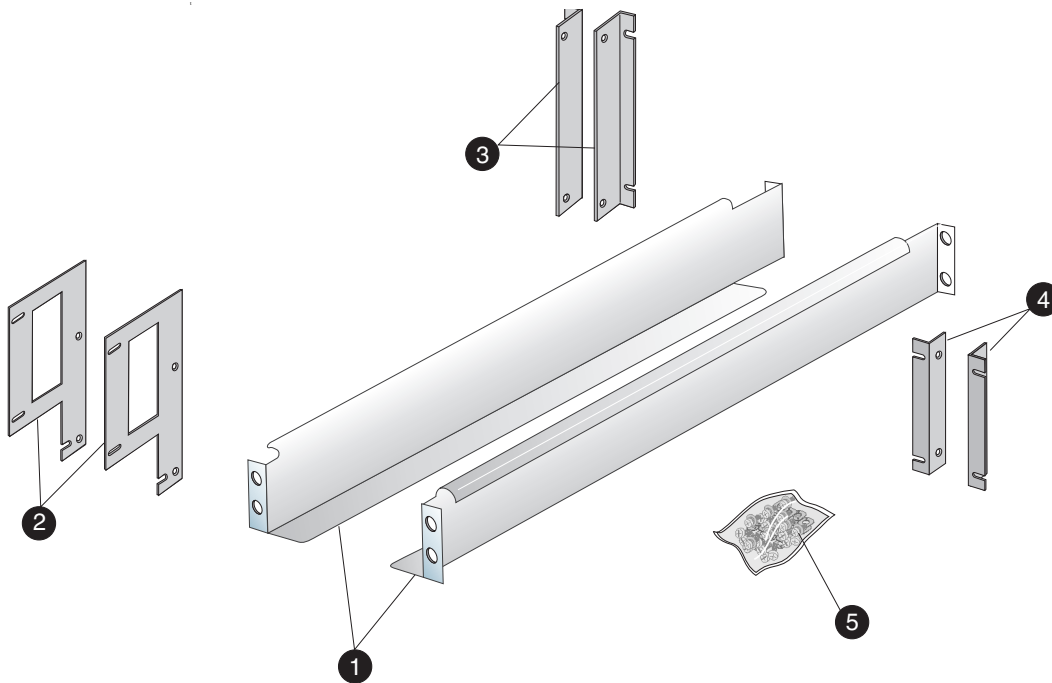
Preparing for Installation

Kit Contents

Your m-series rack mount kit should contain the items listed in [Table 2](#).

Table 2: Contents of M-Series Rack Mount Kit

Number	Item	Quantity	Quantity Required
1	Shelf Brackets	2	2
2	Front Mounting Brackets, left and right, flat	2	2
3	Rear Mounting Brackets, left and right, angle	2	2
4	Front Angle Brackets, left and right	2	2
5	Pouch containing HP m-series rack mount hardware:		
	10-32 X 0.5 in. Phillips panhead screws with lock washers—Installs Shelf and Angle Brackets to rails, also Front Mounting Brackets to Front Angle Brackets	22	20
	10-32 X 0.375 in. Phillips flathead screws—Installs Front and Rear Mounting Brackets to Director 2/64	8	8
	10-32 cage nuts—Installs Front and Rear Angle Brackets to rail	10	8
	Stainless Steel Washers—0.191 in. ID, 0.278 in. OD, 0.032 in. thick, installs Shelf Brackets to rails	8	8
	Square Alignment Washers (only used with 9000 Series rack)	10	0



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- | | |
|---------------------------|--|
| ❶ Shelf Brackets | ❹ Front Angle Brackets |
| ❷ Front Mounting Brackets | ❺ Pouch containing HP m-series rack mount hardware |
| ❸ Rear Mounting Brackets | |

Figure 1: M-Series rack mount kit contents

Required Items

Check that the following items are available before beginning the installation.

- Director 2/64
- M-series rack mount kit
- Lift device (recommended)
- M-series rack
- Torque driver with cross-tip bit (for setting screws with 22 in.-lbs. of torque)
- #2 Phillips screwdriver

Tips for Installing More than One Switch

Review the following tips.

- Install the first Director 2/64 in the lowest position of the rack, allocated for switches.
- Consider leaving a space of 1U open at the top and bottom of the rack, to allow easier cabling access.
- If installing more than one switch, HP recommends installing an optional Power Distribution Unit (PDU) in the bottom of the rack. HP ships two PDU power cords with the Director 2/64.
- Install additional Director 2/64s in position directly above one another.
- Make sure to connect power cables as you install each individual switch.

Moving the Director 2/64

Use these steps to position the Director 2/64 next to the rack.



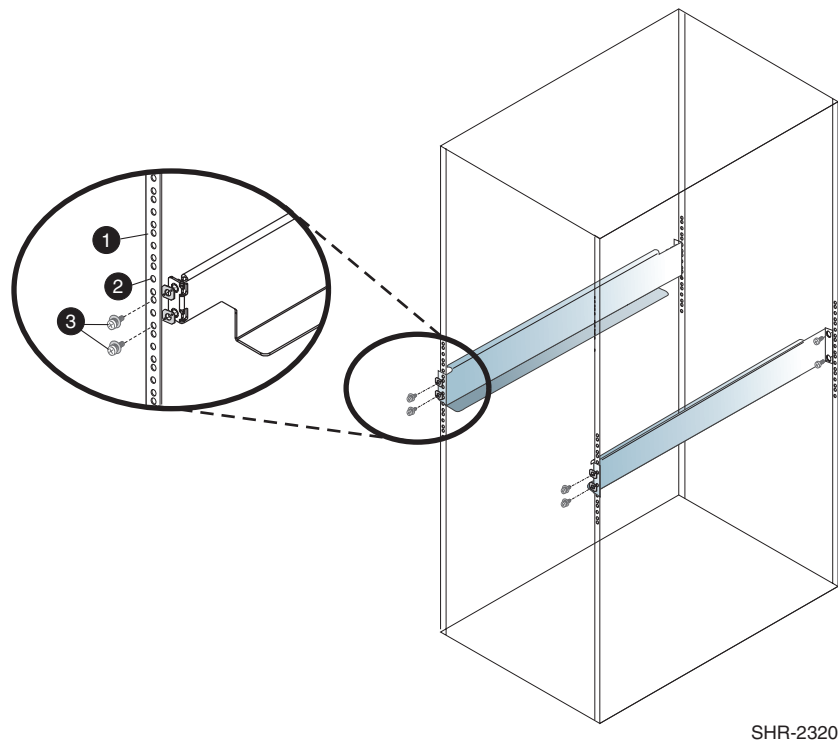
WARNING: Two people will need to work together to transfer the Director 2/64 to the lift. Make sure the wheels of the lift cannot roll as you transfer the Director 2/64 to the lift. Move the Director 2/64 slowly and carefully onto the lift to prevent back and hand injury. Dropping the Director 2/64 could injure personnel or damage the equipment.

1. Position the lift device next to the Director 2/64.
2. Using a pallet jack, raise the pallet on which the Director 2/64 is mounted to the same height as the top surface of the lift device.
3. Slide the Director 2/64 across from the pallet to the lift device.
4. Determine the appropriate rack-mount position. Remember that the Director 2/64 is 15.75 inches or 9 U high.

Installing the Shelf Brackets in the M-Series Rack

Use these steps to install the two shelf brackets in the rack.

1. Determine the appropriate placement for the switch inside the rack. It is important to consider the number of switches you intend to install. See [“Tips for Installing More than One Switch”](#) on page 16
2. Count the round openings in the rail to identify the required position for the switch. Count three round openings for every rail unit, or U, along the rail.
3. Locate the round hole that corresponds with the required U position, as shown in [Figure 2](#).



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- ❶ Rack Rail
- ❷ Round opening in rail
- ❸ Washers and screw

Figure 2: Securing shelf brackets

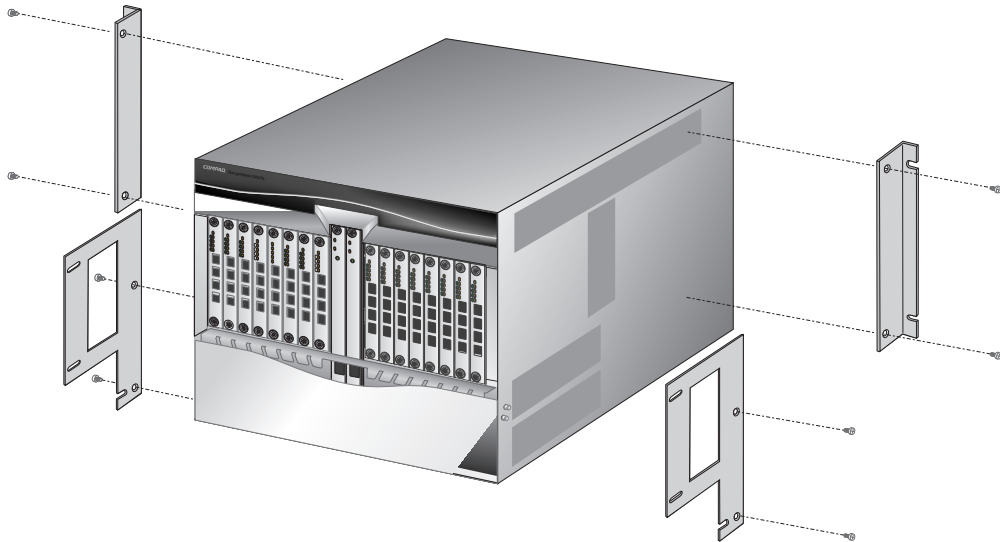
4. Position the higher, shelf bracket threaded hole in this round opening, as shown in [Figure 2](#).
5. Orient the shelf bracket in the rails.
6. Insert a small washer into the rail hole.
7. Insert a screw through the rail hole, the small washer in the hole, and up to the threaded hole in the shelf bracket.
8. Partially tighten the screw to temporarily stabilize the shelf bracket.
9. Make sure the shelf bracket is level, and align the rear of the shelf bracket with the appropriate position on the rear rail, as shown in [Figure 2](#).
10. Repeat steps 4 through 8 for the rear end of the shelf bracket.
11. Repeat steps 1 through 10 for the second shelf bracket.
12. Completely tighten all screws attaching shelf brackets to the rack rails. Torque the screws to 22 in-lbs.

Attaching the Mounting Hardware to the Director 2/64

Use these steps to secure the mounting hardware to the switch.

Note: All mounting brackets are attached to the switch using 10/32 x 0.375-inch flathead countersunk Phillips screws.

1. Locate the two front mounting brackets in the shipping carton.
2. Secure the front mounting brackets on either side of the switch, as shown in [Figure 3](#). For each front mounting bracket, use two screws.



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Figure 3: Securing the front and rear mounting brackets

3. Using a torque driver, torque the screws to 22 in-lbs.
4. Locate the two rear mounting brackets in the shipping carton.
5. Secure the two rear mounting brackets to each side of the switch, as shown in [Figure 3](#). For each bracket, use two screws.
6. Using a torque driver, torque the screws to 22 in-lbs.

Inserting Cage Nuts

Before placing the switch into the rack, insert the cage nuts into the appropriate locations along the rack rails. Read the following sections for instructions on inserting front and rear cage nuts in the rack.

Inserting the Front Cage Nuts in the Rack

Use these steps to insert the four supplied cage nuts in the rack's front rails.

1. Select one of the front rails. Count up 11 round openings from the top screw of the shelf bracket, and insert the first of four cage nuts.
2. Count up 9 round openings from the cage nut you just installed, and insert the next cage nut.
3. To install cage nuts in the companion front rail, repeat step 1 through step 2.

Inserting the Rear Cage Nuts in the Rack

Use these steps to insert the four supplied cage nuts in the rack's rear rails.

1. Select one of the rear rails, and count up 6 round openings from the top screw of the rear shelf bracket. Insert the first of four cage nuts.
2. Count up 16 round openings from the cage nut you just installed, and insert the next cage nut.
3. To install cage nuts in the companion rear rail, repeat step 1 through step 2.

Finalizing the Rack Mounting Procedure

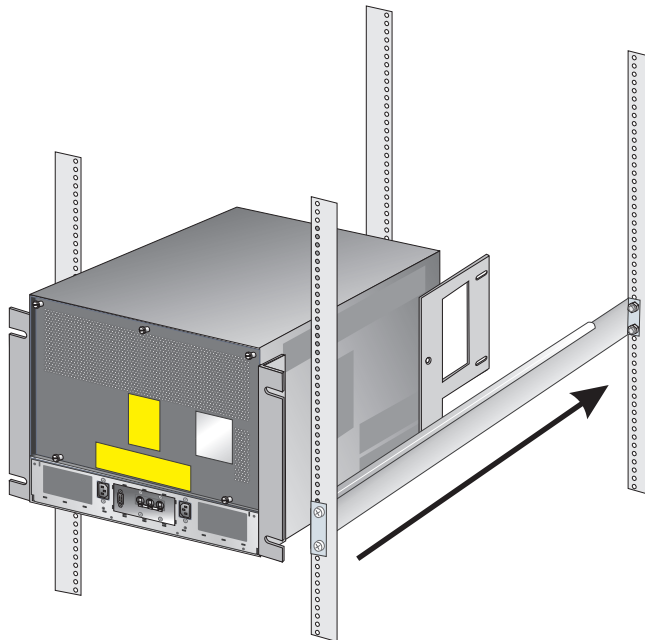
Read the following sections to complete the installation procedure.

After completing the steps outlined in the previous section, prepare to orient the Director 2/64 in the rack as follows. The procedure requires two technicians.



Caution: The Director 2/64 weighs approximately 115 lbs. Do not attempt to lift or carry the Director 2/64 with fewer than two people. Failure to observe this CAUTION may result in injury to personnel or damage to the Director 2/64.

1. Carefully lift the switch into the rear of the cabinet. Slide the switch forward until the edge of the front mounting brackets are approximately 1 inch from the rack's rails, as shown in [Figure 4](#).



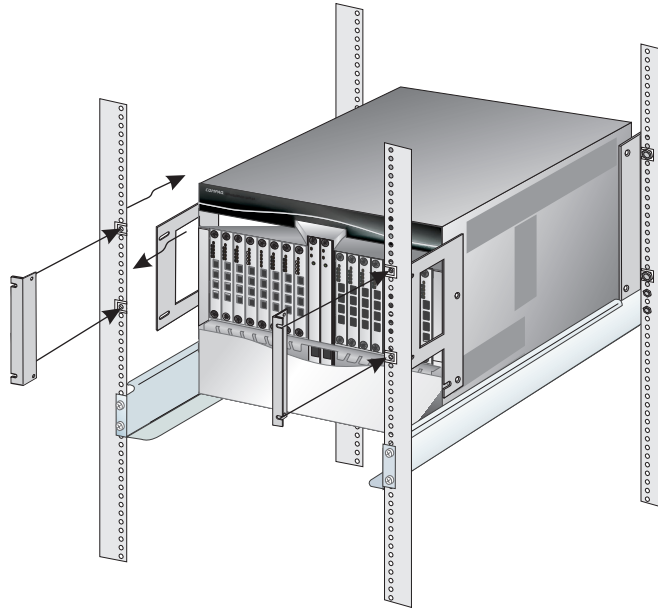
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Figure 4: Aligning the switch in the rack

2. Align one front angle bracket with the cage nuts installed earlier, as shown in [Figure 5](#). See “[Inserting Cage Nuts](#)” on page 20.

Note: Make sure that the angle bracket is in contact with the outside surface of the mounting bracket on the switch. The angle bracket will be between the rail and mounting bracket.

3. Loosely attach the front angle bracket to the rack rail with the two panhead Phillips screws provided, as shown in [Figure 5](#).
4. Repeat steps 2 and 3 for the corresponding front angle bracket, as shown in [Figure 5](#).



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Figure 5: Securing the front angle brackets

The two front angle brackets now touch the outside surfaces of the front mounting plates.

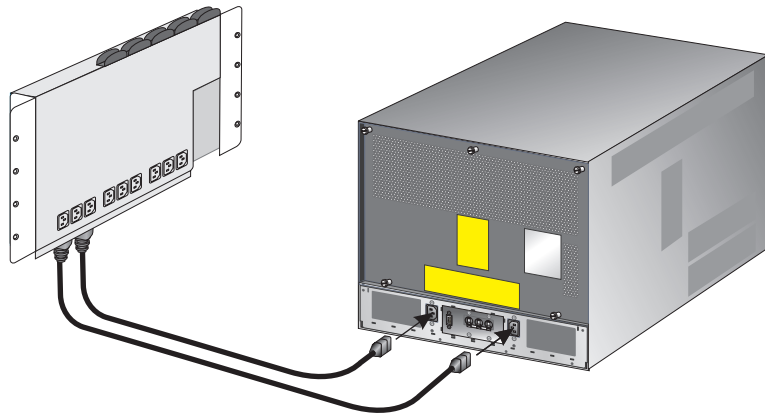
5. Slide the Director 2/64 all the way into the rack to where the rear mounting brackets meet the rack rails.



Caution: Avoid placing fingers or tools near the front mounting brackets while moving the switch. Objects can become pinched between the mounting brackets and the angle brackets.

6. If you are certain that the hardware lines up properly, secure the hardware as follows.
 - a. Secure each front mounting plate to the front angle bracket with the two screws provided.
 - b. Move to the rear of the switch, and secure each rear mounting bracket with the two screws provided.
7. Using a torque driver, torque the screws to 22 in-lbs.
8. Connect the remaining ends of the AC power cords to the PDU, as shown in [Figure 6](#). If the optional second PDU is installed, then connect each power cord to a separate PDU.

Note: HP recommends installing an optional PDU in the rack. HP ships two PDU power cords with the Director 2/64.



SHR-2273

Figure 6: AC power connections



WARNING: HP-supplied power cords are provided for each Director 2/64 power supply. To prevent electric shock, use only the supplied power cord(s). Also, verify that the facility power receptacle is the correct type, supplies the required voltage, and is properly grounded.

9. Connect the equipment rack power cords to separate (for redundancy) facility power sources, providing single-phase, 120 to 240 VAC current.

Power-On Self Test

Use the following steps to run a Power-On Self Test (POST).

1. Power on the PDU (or PDUs if the optional one is installed).
2. At the bottom rear of the Director 2/64, set the power switch (circuit breaker) to the Up position. The Director 2/64 powers on. The following occurs during POST.
 - a. Amber LEDs on both CTP cards and all FPM cards illuminate momentarily.
 - b. The green LED on each CTP card (active and backup) lights as the card is tested and FPM cards are tested.
 - c. Green LEDs associated with Fibre Channel ports sequentially illuminate as the ports are tested.
3. After successful POST completion, the green power LED on the front bezel, green LED on the active CTP card, and green PWR OK LEDs on both power supplies remain illuminated.
4. If a POST error or other malfunction occurs, refer to the “Maintenance Analysis Procedures” section in the *HP StorageWorks Director 2/64 Service Manual*.

Further Setup

For additional information on installing and configuring the Director 2/64, please see the *HP StorageWorks Director 2/64 Installation Guide*.